

In the Application of:

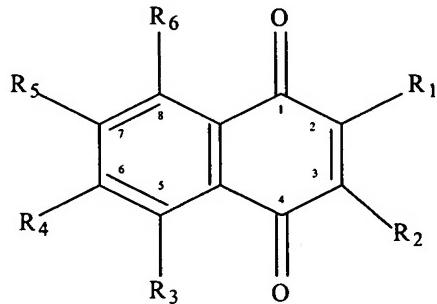
CUTLER et al.

Serial No. 10/003,465

Docket No. 43257

**IN THE CLAIMS:**

1. (Currently Amended) A method for controlling a population of target aquatic pest selected from the group consisting of viruses, protists, fungi, molds, plants, holoplanktonic organisms, meroplanktonic organisms, demersal organisms, benthic organisms, detached or floating biota, bacteria whether or not encysted, protozoans, porifera, platyhelminthes, pseudocoelomates, annelid worms, zebra mollusks, bivalves, larval forms of copepods, ostracods, mysids, gammarids, larval forms of decapods, and larval teleost fish by applying an aquacidal compound to water in an enclosed space or restricted flow path that is infected with said aquatic pest, wherein said aquacidal compound is applied in an amount that is effective to kill said population and is a benzoquinone having the formula:



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where: R<sub>1</sub> is hydrogen, methyl, hydroxy or methoxy group;

R<sub>2</sub> is hydrogen, hydroxy, methyl, methoxy or -NO<sub>2</sub> group;

R<sub>3</sub> is hydrogen, hydroxy, methyl or methoxy group; and

R<sub>4</sub> is hydrogen, methyl, methoxy, hydroxy, or -NO<sub>2</sub> group.

2. (Cancelled)

3. (Original) The method of claim 1, wherein said population of target aquatic pest is selected from the group consisting of viruses, protists, holoplanktonic organisms, and meroplanktonic organisms.

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4. (Original) The method of claim 1 wherein said population of target aquatic pest is selected from the group consisting of demersal organisms, benthic organisms, detached or floating biota, bacteria, encysted bacteria, and protozoans.

5. (Previously Amended) The method of claim 1 wherein said population of target aquatic pest is selected from the group consisting of porifera, platyhelminthes, pseudocoelomates, annelid worms, zebra mussels, bivalves, larval forms of copepods, ostracods, mysids, gammarids, larval forms of decapods, and larval teleost fish.

6. (Original) The method of claim 1 wherein said population of target aquatic pest is selected from the group consisting of spiny water flea and bacteria whether or not encysted.

7. (Original) A method according to claim 1 wherein said target aquatic pest is selected from the group consisting of bacteria whether or not encysted, protozoans, algae, dinoflagellates, dinoflagellate cysts, zebra mussels, and zebra mussel larvae.

8. (Previously Amended) A method according to claim 1 wherein said target aquatic pest is selected from the group consisting of bacteria whether or not encysted, dinoflagellates, dinoflagellate cysts, zebra mussels, and zebra mussel larvae.

9. (Original) A method according to claim 1 wherein said target aquatic pest is a bacteria whether or not encysted.

10. (Original) A method according to claim 9 wherein said bacteria is a *Vibrio* species.

11. (Original) A method according to claim 1 wherein said target aquatic pest is a zebra mussel or zebra mussel larvae.

12. (Original) A method according to claim 1 wherein said target aquatic pest is a demersal organism.

13. (Original) A method according to claim 1 wherein said target aquatic pest is a benthic organism.

14. (Original) A method according to claim 1 wherein said target aquatic pest is a dinoflagellate cyst.

15. (Canceled)

16. (Previously presented) The method of claim 1 wherein said aquacidal compound is selected from the group consisting of 1,4-benzoquinone, 2,5-dihydroxy 3,6-dinitro p-benzoquinone, 2,6-dimethoxy benzoquinone, 3-hydroxy-2-methoxy-5-methyl-p-benzoquinone, 2-methylbenzoquinone, tetrahydroxy-p-benzoquinone, 2,3-methoxy-5-methyl, 1-4-benzoquinone and mixtures thereof.

17. (Original) The method of claim 1, wherein said aquacidal compound is 2,3-methoxy-5-methyl-1,4-benzoquinone.

18. (Original) The method of claim 1 wherein said aquacidal compound is present in an amount of less than 1 wt%.

19. (Original) The method of claim 1 wherein said aquacidal compound is present in an amount within the range of 100 ppb to 500 ppm.

20. (Original) The method of claim 1 wherein said aquacidal compound is present in an amount within the range of 500 ppb to 300 ppm.

21. (Original) The method of claim 1 wherein said aquacidal compound is present in an amount within the range of 1 ppm to 200 ppm.

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22. (Original) The method of claim 1 wherein said population is exposed to said aquacidal compound for at least one hour.

23. (Original) The method of claim 22 wherein said population is exposed to said aquacidal compound for 1-96 hours.

24. (Original) The method of claim 23 wherein said population is exposed to said aquacidal compound for 2-48 hrs.

25. (Original) The method of claim 1 wherein said population of target pest organisms are located in a ballast water reservoir.

26. (Original) The method of claim 1 wherein said population is *Vibrio Cholera* or *Vibrio Fisher*.

27. (Original) A method for killing a target population of mollusk pests in an aqueous system hosting said population comprising the step of adding to said aqueous system an amount that is sufficient to kill said target population of an aquacidal compound selected from the group consisting of 1,4-benzoquinone, 2,5-dihydroxy 3,6-dinitro p-benzoquinone, 2,6-dimethoxy benzoquinone, 3-hydroxy-2-methoxy-5-methyl-p-benzoquinone, 2-methylbenzoquinone, tetrahydroxy-p-benzoquinone, 2,3-methoxy-5-methyl, 1-4-benzoquinone and mixtures thereof.

28. (Original) The method of claim 27, wherein said mollusk pests are selected from the group consisting of mussels, clams and snails.

29. (Original) The method of claim 27, wherein said mollusk pests are selected from the group consisting of zebra mussels and Asiatic clams.

30. (Original) The method of claim 27 wherein said pests are exposed to said aquacidal compound for a period of time sufficient to kill said pests.

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31. (Original) The method of claim 30 wherein said pests are exposed to said aquacidal compound for a period of time within the range of 1-96 hours.

32. (Previously presented) The method of claim 1 wherein said water in an enclosed space or restricted flow path comprises infected water in a ship ballast water reservoir, commercial process water taken in from a static or dynamic body of water, water ready to be discharged into a holding reservoir or waterway, water taken in at an intake port or pipe, water ready for discharge at a port or pipe, water in a heat exchanger, water in a sewage treatment system, water in a food or beverage processing plant, water in a pulp and paper mill, water taken in at a power plant intake, water to be discharged at a power plant outlet pipe, water in a softening plant, water to be discharged as sewage effluent, water in an evaporative condenser, air wash water, food processing water, or brewery pasteurizing water.

33. (Previously presented) The method of claim 32 wherein said water in an enclosed space or restricted flow path comprises infected water in a ship ballast water reservoir, commercial process water taken in from a static or dynamic body of water, water ready to be discharged into a holding reservoir or waterway, water ready for discharge at a port or pipe, water in a heat exchanger, water in a sewage treatment system, water in a pulp and paper mill, water taken in at a power plant intake, water to be discharged at a power plant outlet pipe, water in a softening plant, water to be discharged as sewage effluent, water in an evaporative condenser, air wash water, food processing water, or brewery pasteurizing water.

34. (Previously presented) Ballast water in a ship that contains a benzoquinone according to claim 1.

35. (Previously presented) Ballast water that has been treated by a method according to claim 1.

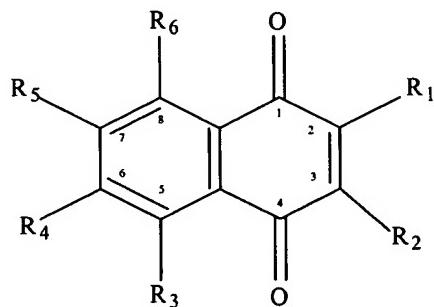
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36. (Currently Amended) A method for controlling a population of target aquatic pest by applying an aquacidal compound to water in a ballast water tank that is infected with said aquatic pest, wherein said aquacidal compound is applied in an amount that is effective to kill said population and is a benzoquinone having the formula:



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where: R<sub>1</sub> is hydrogen, methyl, hydroxy or methoxy group;

R<sub>2</sub> is hydrogen, hydroxy, methyl, methoxy or -NO<sub>2</sub> group;

R<sub>3</sub> is hydrogen, hydroxy, methyl or methoxy group; and

R<sub>4</sub> is hydrogen, methyl, methoxy, hydroxy, or -NO<sub>2</sub> group.